MBSS

An Eye on Maryland Streams

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A Note From MBSS Central

It's been a while—nearly two years in fact—since our last newsletter...testimony to how time simply flies by. There have been lots of other priorities that kept us away from putting finger to keyboard to produce newsletters, and funds for publication and mailings have long ago been diverted for unimportant things like our salaries, repairs for our aging fleet of vehicles (see photo), and other non-essential items. But, we're pleased to report that our editors and contributors haven't lost their sense of humor.

MBSS CREW LEADER SCOTT STRANKO IN A DNR VAN SCHEDULED FOR REPLACEMENT IN 2011

Because electronic publishing costs are minimal and the costs of not communicating are high, we decided to rededicate ourselves to regular publication of *An Eye on Maryland Streams*, the MBSS Newsletter. We won't be mailing out hard copies anymore, and we'll be relying on our readers to encourage others to sign up as subscribers. Each time we have a new edition, we'll send it as an email attachment and also post it on our website. As always, we welcome your suggestions for improving the newsletter and also encourage submittal of material, notes about upcoming meetings, etc. To get on our electronic mailing list, email Ann Smith at asmith@dnr.state.md.us.

MBSS Update

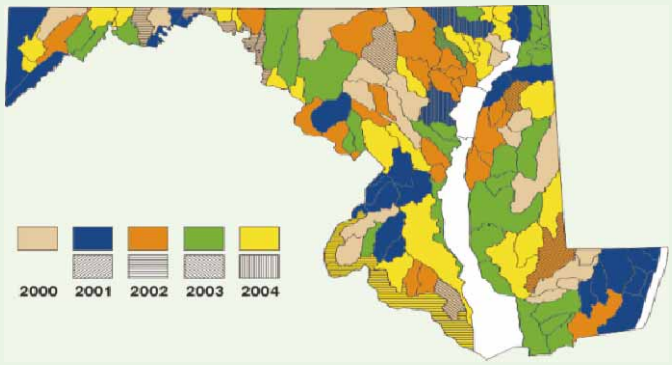
Since our last newsletter in December 1999, much has changed, and much has remained the same. After a highly successful 3 year survey of Maryland streams, DNR decided to continue the MBSS in 2000 as a long-term monitoring program. Sampling methods have remained nearly the same, but some modifications were made to the basic design to meet resource management needs. The MBSS population of streams is now based on a 1:100,000 scale map instead of a 1:250,000 scale map, and we have added 4th order non-tidal streams to our previous target of 1st-3rd order streams. As a result, we now include more of the streams in Maryland.

GreenPrint

On May 18, Governor Parris N. Glendening signed into law House Bill 1379 - The GreenPrint Program, a new land conservation effort that is expected to target $145 million in funding over the next five years (beginning with $35 million in fiscal year 2002) to acquire and protect Maryland's valuable "green infrastructure".

To direct this funding to the most critical need, DNR used a specially designed computer model (green infrastructure assessment) to identify more than two million acres of high value ecological lands in Maryland - most of which comprise forest or wetlands. By targeting the most ecologically valuable lands, which are also threatened, the program will be able to protect significant natural resource areas throughout the state.

MBSS SAMPLING SCHEDULE



Beginning with the 2000-2004 round of the Survey, all watersheds in the state will be sampled every 5 years. Another important change for the new MBSS is that instead of sampling by major river basins (6 digit super-watersheds), we now use 8 digit watersheds as primary sampling units (PSUs). Each time a PSU comes up for sampling, at least 10 sites will be sampled in that watershed (larger PSUs receive more samples to better characterize them). The result is that many previously undersampled watersheds (about 55% of the 8 digit watersheds fell into this predicament) will now have enough data to provide an estimate of conditions. We'll go over other changes in a future newsletter.

While clearly a substantial step that will over time add up to important protection of key lands, only a relatively small portion of our targeted acreage can be protected with this funding source. The real challenge in the years ahead will be to advance and sustain a continual, combined effort among local governments, land trusts, conservation organizations, community groups, and landowners to successfully protect the majority of Maryland's green infrastructure for future generations.

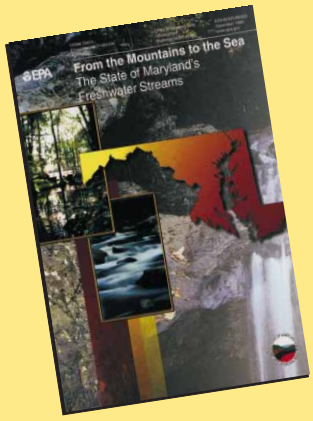
The computer model incorporated MBSS aquatic resource data to help define the "hubs" and "corridors" contained in the green infrastructure. MBSS sites of high biotic integrity were used to help identify those forests and wetlands which are important to protect from an aquatic living resource perspective. Yet another in the growing list of important MBSS data uses!

County Reports

MBSS staff have always recognized the importance of political boundaries, but never was it more apparent than after the September 2000 press release for our report *From the Mountains to the Sea: the State of Maryland's Freshwater Streams*. Questions about county-level results dominated the inquiries from the press and the public, reinforcing our belief that monitoring results need to be packaged not just by watershed boundaries but by political boundaries as well. To fill this need, MBSS staff recently completed 24 reports-one for each county and Baltimore City. Each report presents key MBSS results for that county, along with a page of interpretation to place the results in perspective. To view or download these reports, go to www.dnr.state.md.us/streams/mbss/mbss_pubs.html. In future versions of these reports, we hope to include locally-collected data for those counties and municipalities who are using MBSS methods to collect data.

Award Winner

It wasn't an Emmy or an Oscar, but the MBSS did receive recognition recently, of which MBSS staff are understandably proud. Our report *From the Mountains to the Sea: the State* of *Maryland's Freshwater Streams* was nominated for and received an award for a Best State Government Document in 2000. Oh, and rumors that the MBSS team showed up at the black tie dinner in chest waders to receive the award just aren't true...



Reproductive Efforts

This summer, two of our three MBSS crew leaders expanded their family. On July 25, Angie and Scott Stranko witnessed the birth of Max, their 2nd son. Actually, Scott witnessed it while Angie did all the work. Not to be outdone, less than a month later, on the 15th of August, Sandy and Tony Prochaska welcomed the arrival of their 2nd daughter, Megan. Amazingly, both babies show a very strong resemblance to their dads. Congratulations!

Who Uses This Stuff, Anyway?

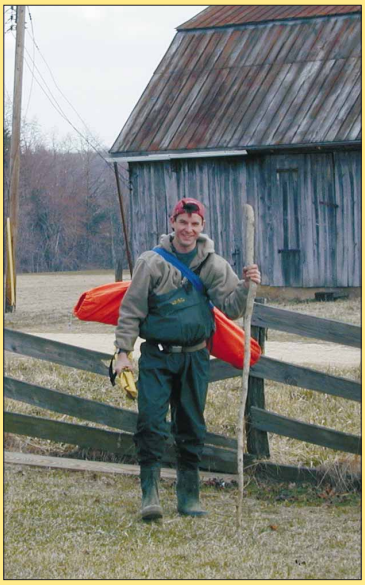
Since we began the MBSS as a pilot in 1993, one of our goals has been to see our data incorporated into resource management decision-making at DNR and elsewhere. If monitoring data aren't regularly used for a range of management decisions, there isn't much point in collecting them (other than the joy of getting out of the office and being in the field). It's taken a while to get here and MBSS data are still underutilized, but in 2001 we can point to a growing number of applications.

As part of the Clean Water Action Plan's Unified Watershed Assessment, MBSS data played an integral part of ranking Maryland's watersheds for protection and restoration. As a result, Maryland received an extra $1.4 million in funding for priority watersheds, with a smaller amount coming to the agency in Fiscal Year 2002. Speaking of ranking, the Nature Conservancy is now completing a process of identifying and ranking exceptional streams and watersheds. According to Conservancy staff, the MBSS data set has been so valuable that the Maryland ranking sets the standard in the nation for other states to follow.

MBSS data are also being used to revise the list of threatened and endangered fishes of Maryland. The sheer volume of data has literally doubled the data set used to rank species, and for the first time in any state, quantitative population estimates are being incorporated into the equation.

Trade Rumors

If you ever want to know whether the grass really is greener on the other side, ask Jay Kilian. In early 2000, Jay was the top candidate in a grueling competition for a permanent position with DNR's dedicated, hard-working MBSS staff. Jay has a long and colorful history with the MBSS - eight field seasons, in fact. Starting his career with the University of Maryland's Wye Island MBSS crew, Jay was eventually traded to the UMD Appalachian Laboratory in Frostburg (MBSS West) for a 10th round draft choice and a broken (but repairable) anode ring. During that period, Jay purported to work on a masters degree under Dr. Ray Morgan. To persuade DNR to take Jay off of his hands, Ray reportedly offered two new vehicles, a dozen day old bagels, and a pack of waterproof paper. Being hungry, always looking for low-mileage vehicles, and needing to order paper for sampling, MBSS staff couldn't refuse Ray's offer. Welcome aboard Jay!



Beyond ranking watersheds and species, MBSS data have been used by Maryland's Department of the Environment to develop interim Biocriteria for Maryland Streams. Using indices of biological integrity for fish (F-IBI) and benthic macroinvertebrates (B-IBI), MBSS sites and watersheds are rated as either passing, failing, or inconclusive (too near the threshold to tell one way or the other without more sampling). Failing areas will be placed on a list of impaired waters for Maryland (303d list) and TMDLs (Total Maximum Daily Load) will be prepared and implemented to remedy the situation. MBSS data are also being used in the calculation of TMDL's.

MBSS data have also been a key component of cost calculations for restoring streams in Maryland's portion of the new Chesapeake Bay Agreement (billions of dollars). Because of the scope and design of the MBSS, Maryland's cost estimates will be based on more quantitative information than educated guesses.

MBSS data are also used for a wide variety of other purposes, from the semi-annual water quality report to Congress (305b report) to landowners interested in conditions in their stream. Testimony to the increasing use of MBSS data and future plans is the growing number of groups using MBSS methods to collect their own information. The current list includes six Maryland counties, the City of Baltimore, Maryland National Capital Parks & Planning Commission, State Highway Administration, University of Maryland, St. Mary's College, the U.S. Army Corps of Engineers Baltimore District and several watershed groups. So the MBSS seems to have a reason to exist. In a future issue, we will present some thoughts on other opportunities for the use of MBSS data.

Groups using MBSS methods as of 2001

- Carroll, Frederick, Howard, Montgomery, Prince George's, and Baltimore Counties and Baltimore City
- Maryland National Capitol Park and Planning Commission
- U.S. Army Corps of Engineers
- Maryland State Highway Administration and Bureau of Mines
- University of Maryland and St. Mary's College
- Ridge and Valley Stream Keepers
- Hunting Creek Watershed Task Force/Calverton High

Stream Monitoring in Maryland – Strong Partnerships for a Common Goal

A salient goal of the Maryland Water Monitoring Council is to encourage water monitoring organizations to use comparable sampling methods. Sharing methods not only promotes seamless data integration but it fosters better communication among sampling groups and facilitates cooperative sampling efforts. With this goal in mind, several local, state, and federal governmental organizations, colleges, and environmental groups have incorporated MBSS methods into their stream monitoring programs. With shrinking budgets facing most of us, sharing resources, information, and data makes the best of sense.

REVIEW OF FISH TAXONOMY BEFORE ATTENDEES TAKE THE ANNUAL FISH TEST

What's the best way to ensure that data are collected consistently? Standardized training and testing for all. To this end, DNR invites biologists from outside organizations monitoring streams in Maryland to annual training sessions for MBSS. More than 40 biologists from "outside" organizations attended MBSS training in 2001 and the number keeps growing. During these sessions, descriptions of methods are presented by MBSS staff and all attendees "run through the ropes" of field work, including a fish taxonomy test. Those who hang in there until the end of training receive a certificate of training from DNR. MBSS training sessions have become so popular that we now plan two sessions for each sampling season: one for DNR staff and another for other interested folks. Following training, the MBSS QC officer follows up by conducting field audits with both "outside" and DNR crews. To learn more about MBSS training, call Paul Kazyak at 410-260-8607.

Maryland Stream Waders - off and wading!

Its a cold and blustery Saturday morning in February 2001, and a group of 79 students, teachers, interested citizens and government employees have convened in a filled-to-capacity classroom at Wor-Wic Community College, near Salisbury. Sipping coffee and nibbling donuts, these Maryland Stream Waders volunteers are here to learn some basic stream ecology and techniques for assessing the health of freshwater streams in their area. After a few hours of indoor training, they trek to a nearby stream to practice collecting samples of aquatic invertebrates. Despite the cold, these folks, and those at the other three February 2001 training sessions across Maryland, are committed to learning more about their local streams while helping DNR collect good data.

Begun as a pilot in 2000, Stream Waders is a statewide volunteer stream monitoring program managed by DNR's Monitoring and Non-tidal Assessment (MANTA) Division. Stream Waders is the volunteer component of the Maryland Biological Stream Survey (MBSS). Goals of Stream Waders are 1) to fill data gaps (some streams go unsampled by MBSS), 2) improve stream and watershed stewardship, 3) educate local communities, and 4) provide reliable data for use in water quality and watershed assessment reports. Volunteers collect samples of aquatic invertebrates (the indicator group used to tell us the health of streams) and provide some general habitat data. Stream Waders samples are processed by DNR staff in MANTA's water monitoring laboratory in Annapolis, and stream health is assessed using a family-level Index of Biotic Integrity developed for MBSS data.

The first two years of Stream Waders were very successful, with more than 350 volunteers sampling more than 700 sites each year. While data from 2001 are still being processed, you can search 2000 Stream Waders data at

http://mddnr.chesapeakebay.net/mbss/streamwaders.cfm

For more information on the Program or to volunteer, surf on over to

http://www.dnr.state.md.us.streams/mbss/mbss_volun.html

or send us an email at

streamwaders@dnr.state.md.us

or call at 1-877-8DNR (X8623).

New Stream Reports Available

Another comprehensive stream assessment report finally saw the light of day in the year 2000. The Region III office of U.S. EPA published *Mid-Atlantic Highlands Assessment* (EPA/903/R-00/015), a 64-page document that assessed the ecological condition of streams in the Mid-Atlantic Highlands (Pennsylvania, West Virginia, Virginia and western Maryland) and ranked the potential stressors affecting stream condition. Like DNR's MBSS, this 1993-1994 EPA study used a random sampling design but with a much lower sample site density (i.e., 500 sites over the entire four state study area compared to almost 1000 sites sampled in Maryland alone by the MBSS in 1995-1997). The EPA study estimated that 31% of the stream miles in the Mid-Atlantic Highlands were in poor condition based on their fish IBI scores and 27% were in poor condition based on the EPT Index, a measure of sensitive aquatic insect taxa. Copies of this report can be requested from: U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, PA 19103-2029 or downloaded from

http://www.epa.gov/maia/html/maha.html

Several MBSS-related reports have also been completed since our last newsletter, including *Refinement and Validation of a Fish Index of Biotic Integrity for Maryland Streams*; an updated *MBSS Sampling Manual*; *Maryland Stream Waders Volunteer Stream Monitoring Manual*; *Current Distribution, Abundance, and Habitat Preferences of* the *Stonecat (Noturus flavus) in Maryland*; *Maryland Biological Stream Survey Laboratory Methods for Benthic Macroinvertebrate Processing and Taxonomy*; and *1995_1997 Maryland Biological Stream Survey Results For Selected Small Watersheds*. All of these may be downloaded from

http://misdata/streams/mbss/mbss_pubs.html

or you may call Ann Smith at 410-260-8611 for a hard copy.

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Maryland Streams on the Web

Here are some outstanding web resources dealing with Maryland's streams. Check em' out!

Everything you wanted to know about streams in Montgomery County can be found at

http:www.co.mo.md.us/services/dep/watersheds/streamhtml/streammap.html

provided by the Department of Environmental Protection.

Learn about Prince Georges County volunteer Stream Teams at

http://gcmd.gsfc.gov/stream_team/stream_team.html

and the activities of Save our Streams at

http://www.saveourstreams.org

Search 1995-2000 MBSS data at

Http://mddnr.chesapeakebay.net/mbss/search.cfm

and Stream Waders data at

Http://mddnr.chesapeakebay.net/mbss/streamwaders.cfm

You can also download the first round (1995-1997) MBSS data from

http://mddnr.chesapeakebay.net/mbss/survey.cfm

Have you been wondering about the many and varied impacts of stormwater runoff on Maryland's streams? Check out

http://www.mde.state.md.us/environment/wma/stormwatermanual/

provided by the Maryland Department of the Environment.

Upcoming gatherings

Find out about the upcoming annual meeting of the Maryland Water Monitoring Council to be held on November 16, 2001 at

Www.mgs.md.gov/mwmc/conf/index.html

or the national version of this meeting (National Water Monitoring Council) at

www.nwqmc.org/nationalconference/2002conference/2000conf.htm

If your main interest is fish, check out the upcoming meeting of the American Fisheries Society in Baltimore at

www.fisheries.org/annual2002/

If your main interest is fish food (i.e., benthic invertebrates), learn about the Pittsburgh 2002 meeting of the North American Benthological Society

http://www.benthos.org/meeting/